

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2003-0019

SITE CLEANUP REQUIREMENTS AND RESCISSION OF ORDER NO. 93-062 FOR:

SHORE TERMINALS LLC
MARTINEZ TERMINAL

for the property located at

2801 WATERFRONT ROAD
MARTINEZ
CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (Board), finds that:

FINDINGS

- 1) **Site Location:** The 255-acre property is located at 2801 Waterfront Road in the City of Martinez near the south shore of the Carquinez Strait (Figure 1).
- 2) **Site History and Ownership:** Shore Terminals LLC, (Discharger) presently owns and operates the Martinez Terminal Facility (Facility), a bulk petroleum storage, transfer, and blending facility. The Facility is presently used to store refined and unrefined petroleum product. As of January 2001, Shore Terminals, LLC became a wholly owned subsidiary of Kaneb Pipeline Operating Partnership, L.P. located in Richardson, Texas.

Wickland Oil Martinez Limited Partnership (Wickland) operated the Facility from August 20, 1991 until October 7, 1998.

Martinez Terminals Limited (MTL) owned and operated the Facility from November 18, 1987 to August 20, 1991. The MTL partnership terminated after transferring ownership to Wickland.

Landsea Terminal, Incorporated (LTI) owned and operated the Facility prior to November 18, 1987. LTI went into bankruptcy, and the Facility was purchased by MTL at a foreclosure sale on November 18, 1987.

- 3) **Named Dischargers:** Shore Terminals is named as a Discharger because it is the current owner of the property and operator of the Facility, and owned the property during or after the time of the activity that resulted in the discharge.

If additional information is submitted indicating that other parties caused or permitted any waste to be discharged on the site where it entered or could have entered waters of the State, the Board will consider adding those parties to this order.

- 4) **Purpose of Order:** The purpose of this Order is to: 1) provide a schedule associated with investigative and remedial actions at the site; 2) require the definition of the vertical and horizontal contamination extent in soil and groundwater; 3) require the removal of contamination from the subsurface, thereby remediating the soil and groundwater; and 4) rescind the previous Site Cleanup Requirements.
- 5) **Regulatory Status:** This site was subject to the following Board orders:
 - a) Site Cleanup Requirements Order No. 93-062 adopted in June 1993 that rescinded Order No. 92-144.
 - b) Waste Discharge Requirements for a Class II surface impoundment. The requirements are included in Board Order No. R2-2002-0023 that was adopted in February 2002 and that rescinded Order No. 93-125.
- 6) **Geological Setting:** The geologic setting in and near the tank farm area consists of exposed bedrock. A hill on the northwestern portion of the Facility is the surface expression of a northwest-trending bedrock ridge that extends across the Facility and is the location of the crude oil tank farm. This Chico Formation bedrock dips 50 degrees to the southwest and consists of alternating beds of sandstone, siltstone, and claystone. Varying degrees of weathering and fracturing have been noted in core samples from borings into the bedrock. When the property was developed in the mid 1970s, the area north and northeast of the tank farm area was filled with dredge sediments, clayey sediment of unknown origin, and bedrock excavated from the central and western portion of the Facility. Fill of varying thickness (up to 7 feet thick) and compositions covers the areas immediately west and east of the tank farm. Further to the east and west, the sandy silt to silty sand fill is underlain by interbedded clay (some with a high organic content) and peat.
- 7) **Surface Water:** The Facility is located 0.5 miles from the south shore of the Carquinez Strait. Pacheco Slough is located about 0.5 miles to the east of the Facility.
- 8) **Groundwater:** As of second quarter 2002, 49 groundwater monitoring wells and piezometers are included in the groundwater-monitoring program. Depth to water ranges from 1 to 18 ft across the Facility with a northeasterly flow direction in the northwestern portion of the Facility. A northwest/southeast trending groundwater ridge exists in the southeastern portion of the Facility.
- 9) **Petroleum Hydrocarbon and Oxygenate Contamination Sources:** Soil and groundwater at the site have been impacted by petroleum hydrocarbons and oxygenates that emanate from

leaking underground fuel dispensing piping, and surface releases associated with the storage and dispensing of petroleum products. The exact locations of all of the sources are unknown at this time. The primary contaminants of concern at this time are the result of releases of gasoline and diesel to the subsurface. Free product samples collected in March and May, 2002, by Geomatrix Consultants (Geomatrix) revealed that both historical and current releases are contributing to the subsurface petroleum contamination. This fact was evident because the 2002 samples contained both weathered and fresh petroleum and was communicated to Board Staff verbally by Geomatrix, and reported in a September 30, 2002 technical report.

- 10) **Extent of Hydrocarbon Contamination:** Investigations of soil and groundwater contamination have been conducted at the Facility since 1988. The center of the site contains free-phase hydrocarbons that have not been effectively remediated and act as a source for a plume of free-phase and dissolved-phase petroleum hydrocarbons and oxygenates. The maximum hydrocarbon thickness measured at the site in May 2002 was 1.53 ft in well P-10. Free-phase hydrocarbons have been detected consistently in wells P-5, P-9, and P-10 and at times in wells P-4 and W-4. Based on these well locations, an area of approximately 30,000 square ft (0.7 acres) in the center of the site is impacted by free-phase hydrocarbons. In addition, small amounts of free-phase hydrocarbons were detected recently in wells P-26 and P-31, located adjacent to the crude oil tank farm in the northeastern portion of the Facility (Figure 1). A groundwater/petroleum extraction trench system was installed along the western portion of the site but is no longer operating

As of second quarter 2002, a methyl tert-butyl ether (MTBE) plume extended about 1,500-ft downgradient of well P-9 with an entire plume surface area of about 1,300,000 square ft (30 acres). At this time the exact source of the MTBE is not known. Increasing MTBE concentrations in well W-1 indicate that an active primary MTBE source may currently exist (Figure 2).

As of May, 2002, the following maximum concentrations were detected in site monitoring wells:

Constituent	Concentration (ppb)	Well
Free Product	N/A	P-4, P-5, P-9, P-10, P-26, and P-31
Benzene	1,800	P-2
Toluene	140	P-16
Ethylbenzene	1,500	P-16
Total Xylenes	6,900	P-16
TPHgasoline	40,000	P-16
TPHdiesel	1,200	W-1
TPHmotor oil	200	P-12
MTBE	110,000	W-1

- 11) **Current Remedial Efforts:** The Discharger currently hand-bails free-phase petroleum hydrocarbons from wells P-4, P-5, P-9, and P-10. No significant extraction technologies have been implemented in the vicinity of these wells to date. Extraction of impacted groundwater

and free-phase hydrocarbons from the trench located on the western side of the property has been discontinued.

- 12) **Basin Plan:** The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory provisions is contained in 23 CCR 3912.

The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface water and groundwater. The existing and potential beneficial uses of Carquinez Strait and contiguous water bodies are:

- a) Contact water recreation;
- b) Non-contact water recreation;
- c) Wildlife habitat;
- d) Preservation of rare and endangered species;
- e) Estuarine habitat;
- f) Fish migration and spawning;
- g) Industrial service supply;
- h) Navigation-commercial and sport fishing;
- i) Shellfish harvesting; and
- j) Municipal and domestic Supply.

The existing and potential beneficial uses of the groundwater in the vicinity of the site include:

- a) Municipal and domestic Supply;
- b) Industrial process and service supply; and
- c) Agricultural supply.

13) **Resolutions:**

- a) **State Water Resources Control Board Resolution No. 68-16:** State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives. This Order and its requirements are consistent with Resolution No. 68-16.

- b) **State Water Resources Control Board Resolution No. 92-49:** State Water Resources Control Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under California Water Code Section 13304," applies to this discharge. This Order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.
 - c) **Basis for California Water Code Section 13304 Order:** The Discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of contamination or nuisance.
- 14) **CEQA:** This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.
- 15) **Notification:** The Board has notified the Discharger and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.
- 16) **Public Hearing:** The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the Discharger (or its agents, successors, or assigns) shall cleanup and abate the effects described in the above findings as follows:

PROHIBITIONS

- 1) The discharge of wastes or hazardous substances in a manner that will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.
- 2) Further significant migration of wastes or hazardous substances through surface or subsurface transport to waters of the State is prohibited.
- 3) As required by State Water Resources Control Board General Permit No. CAS000001 for the Discharge of Storm Water Associated with Industrial Activities, the discharge of contaminant-impacted stormwater from the site, including sediment, is prohibited.
- 4) Activities associated with the subsurface investigation and cleanup that will cause significant adverse migration of wastes or hazardous substances are prohibited.

- 5) The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).

TASKS

1) INTERIM CORRECTIVE ACTION PLAN

COMPLIANCE DATE: FEBRUARY 27, 2003

The Discharger shall prepare an Interim Corrective Action Plan (ICAP) and schedule acceptable to the Executive Officer for the removal of free-phase hydrocarbons and the remediation of hydrocarbon-impacted soil and groundwater at the site. The plan shall at a minimum propose extracting contaminants from a central area of any plume such that contaminants do not migrate further from the source. The contaminant extraction system and extraction rate shall be augmented until plume stability is achieved. Evidence of plume stability shall be documented and may consist of information such as reduction of aerial plume extent or decreasing contaminant concentrations in soil and groundwater. Due to the extreme size of the MTBE plume emanating from the Facility, the corrective action plan shall be implemented within 60 days following approval (Task 2). Any fine-tuning of site monitoring well locations or source area definition can be completed concurrently, but shall not delay the preparation of this plan.

2) IMPLEMENTATION OF CORRECTIVE ACTION PLAN

COMPLIANCE DATE: 60 Days after CAP approval

Once the ICAP has been approved by the Executive Officer, the remedial alternative shall be constructed and implemented immediately. Any additional investigative work can be completed concurrently, but shall not delay the construction and implementation of the remediation system.

3) SITE CHARACTERIZATION WORKPLAN

COMPLIANCE DATE: FEBRUARY 27, 2002

The Discharger shall submit a workplan, acceptable to the Executive Officer, that presents proposed additional investigative work that is necessary to complete the full definition of the horizontal and vertical extent of both free-phase and dissolved-phase contamination in soil and groundwater at the Facility. The workplan shall also propose any additional work necessary to identify the exact location of all sources of contamination. Specifically, the plan shall include an assessment of all underground piping with the objective of locating all current or historical leaks, and repairing, replacing, or day lighting all piping identified as potential sources in the assessment. The plan must take into consideration the likelihood that the source of the fresh product may not coincide spatially with the highest MTBE concentrations

currently detected in the existing monitoring wells. MTBE's high solubility in water allows it to move through the subsurface as a mass (plug flow). Therefore, the highest concentrations may exist in downgradient areas where no monitoring wells exist. Additional investigation directed at defining the highest MTBE concentrations shall be proposed in the workplan.

4) FINAL SITE CHARACTERIZATION REPORT

COMPLIANCE DATE: MAY 29, 2003

The Discharger shall submit a report, acceptable to the Executive Officer, that provides the results of investigations proposed in the Site Characterization Work Plan prepared in accordance with Task 3. The report shall include boring logs, laboratory analyses, updated cross-sections, isoconcentration maps showing laboratory analysis data, a site conceptual model, and conclusions and recommendations for further site characterization work, if necessary.

5) FINAL CORRECTIVE ACTION PLAN

COMPLIANCE DATE: JULY 25, 2003

The Discharger shall submit a Final Corrective Action Plan (CAP) and schedule acceptable to the Executive Officer for the removal of free-phase hydrocarbons and the remediation of contaminated soil and groundwater at the site. The CAP shall include proposed modifications to the interim CAP (Task 1) and shall incorporate the information generated during the site characterization activities into a site-wide CAP.

6) PROPOSED INSTITUTIONAL CONSTRAINTS

COMPLIANCE DATE: MAY 29, 2003

The Discharger shall submit a technical report acceptable to the Executive Officer documenting procedures to be used by the Discharger to prevent or minimize human exposure to soil and groundwater contamination prior to remediating the site. Such procedures shall include ensuring that the current owner record a deed restriction for the Facility prohibiting the use of on-site shallow groundwater as a source of drinking water, and periodic notification to any affected downgradient property owners regarding hydrocarbon contaminated groundwater originating from the Site.

7. IMPLEMENTATION OF INSTITUTIONAL CONSTRAINTS

COMPLIANCE DATE: **60 days after Executive Officer approval of proposed institutional constraints**

Submit a technical report acceptable to the Executive Officer documenting that the proposed institutional constraints have been implemented.

8) PROPOSED CURTAILMENT

COMPLIANCE DATE: **60 days prior to proposed curtailment**

The Discharger shall submit a technical report acceptable to the Executive Officer containing a proposal to curtail remediation. Curtailment includes system closure (e.g. well abandonment), system suspension (e.g. cease extraction but wells retained), and significant system modification (e.g. major reduction in extraction rates, closure of individual extraction wells within extraction network). The report shall include the rationale for curtailment. Proposals for final closure shall demonstrate that cleanup standards have been met, contaminant concentrations are stable, and contaminant migration potential is minimal.

9) IMPLEMENTATION OF CURTAILMENT

COMPLIANCE DATE: **60 days after Executive Officer approval**

The Discharger shall submit a technical report acceptable to the Executive Officer documenting completion of the tasks identified in Task 8.

10) FIVE-YEAR STATUS REPORT

COMPLIANCE DATE: **Five years after Implementation of Curtailment is completed**

The Discharger shall submit a technical report to the Executive Officer evaluating the effectiveness of the proposed cleanup plan. The report shall include:

- a) Comparison of contaminant concentration trends with cleanup standards; and

Additional remedial actions proposed to meet cleanup standards (if applicable) including time schedule.

- 11) **Delayed Compliance:** If the Discharger is delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the Discharger shall promptly notify the Executive Officer and the Board may consider revision to this Order.

PROVISIONS

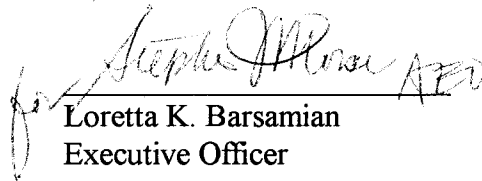
- 1) **Operation and Maintenance (O&M):** The Dischargers (as applicable) shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.
- 2) **Discharges:** If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited, or probably will be discharged in or on any waters of the state, the Discharger shall:
 - a) Report such discharge to the Office of Emergency Services at (800) 852-7550.
 - b) File a written report with the Regional Board within five working days that shall contain information relative to the following:
 - i) The nature of waste or pollutant;
 - ii) The quantity involved and the duration of incident;
 - iii) The cause of the spill;
 - iv) The estimated size of the affected area;
 - v) The corrective measures that have been taken or planned, and a schedule of these measures;
 - vi) The persons/agencies notified; and
 - vii) A copy of the OES notification report.
- 3) **Stormwater:** The Discharger shall comply with the State's General Stormwater Permits for both industrial activities and construction activities (Order Numbers 97-03-DWQ and 99-08-DWQ, respectively).
- 4) **Contractor/Consultant Qualifications:** All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist or hydrogeologist, or a California registered civil engineer.
- 5) **Lab Qualifications:** All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).

- 6) **Document Distribution:** Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the Contra Costa County Health Department. The Executive Officer may modify this distribution list as needed.
- 7) **Self-Monitoring Program:** The Dischargers (as applicable) shall comply with the Self-Monitoring Program as attached to this Order and as may be amended by the Executive Officer.
- 8) **Access to Site and Records:** In accordance with California Water Code Section 13267(c), the Dischargers (as applicable) shall permit the Board or its authorized representative:
 - c) Entry upon premises in which any contamination source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order;
 - d) Entry upon tank Facility premises to conduct periodic inspections;
 - e) Access to copy any records required to be kept under the requirements of this Order;
 - f) Inspection of any monitoring or remediation facilities installed in response to this Order; and
 - g) Sampling of any groundwater or soil, which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Dischargers (as applicable).
- 9) **Cost Recovery:** The Dischargers (as applicable) shall be liable, pursuant to California Water Code Section 13304 and Health and Safety Code Section 25270.9 to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the Dischargers (as applicable) over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.
- 10) **Reporting of Changed Owner or Operator:** The Dischargers (as applicable) shall file a report on any changes in site occupancy or ownership associated with the property described in this Order.
- 11) **San Francisco Regional Water Quality Control Board Resolution No. 88-160:** Board Resolution No. 88-160 allows discharges of extracted, treated groundwater from site cleanups to surface waters only if it has been demonstrated that neither reclamation nor discharge to the sanitary sewer is technically and economically feasible.

12) **Periodic SCR Review:** The Board will review this Order periodically and may revise it when necessary. The Dischargers (as applicable) may request revisions and upon review the Executive Officer may recommend that the Board revise these requirements.

13) **Rescind Order 93-062:** Board Order No. 93-062 is hereby rescinded.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on February 19, 2003.

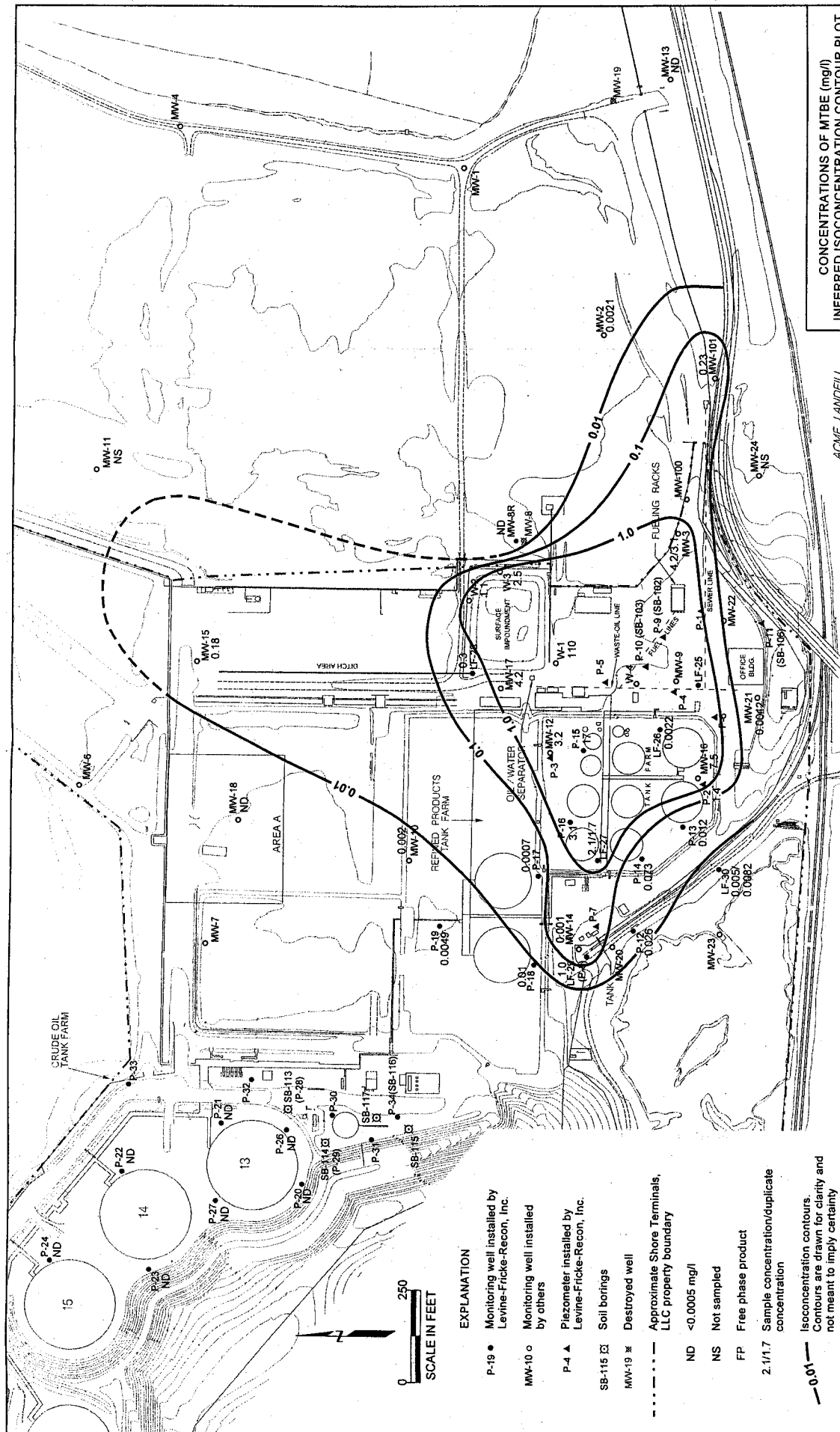

Loretta K. Barsamian
Executive Officer

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FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO: IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY

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Attachments: Figure 1. Site Plan
Figure 2. Extent of MTBE in Groundwater
Self-Monitoring and Reporting Program



CONCENTRATIONS OF MTBE (mg/l) INFERRED ISOCONCENTRATION CONTOUR PLOT May 2002 Shore Terminals - Martinez Facility Martinez, California	
	Project No. 6000.001 B
	Figure Z

EXPLANATION

P-19 • Monitoring well installed by Levine-Fricke-Recon, Inc.

MW-10 ○ Monitoring well installed by others

P-4 ▲ Piezometer installed by Levine-Fricke-Recon, Inc.

SB-115 □ Soil borings

MW-19 ✕ Destroyed well

--- Approximate Shore Terminals, LLC property boundary

ND <0.0005 mg/l

NS Not sampled

FP Free phase product

2.1/1.7 Sample concentration/duplicate concentration

—0.01— Isoconcentration contours. Contours are drawn for clarity and not meant to imply certainty

NOTES

- Not shown on this figure:
 - Crude oil tank #16 located to the west of tank #15 and vadose zone piezometer P-25 is located on the northeast side of tank #16.
 - Monitoring well MW-5 located approximately 1,240 feet north of well MW-4.
- Location of MW-38, a monitoring well installed by Levine-Fricke-Recon in February 2001, is approximate and based on information provided by the Regional Water Quality Control Board, San Francisco Bay Region.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

SHORE TERMINALS LLC, MARTINEZ TERMINAL

2801 WATERFRONT ROAD,
MARTINEZ, CONTRA COSTA COUNTY

ORDER NO. R2-2003-0019

A. AUTHORITY AND PURPOSE

The Regional Board requests the technical reports required in this Self-Monitoring Program (SMP) pursuant to Water Code Sections 13267 and 13304. This SMP is intended to document compliance with Regional Board Order No. R2-2003-0019 (Site Cleanup Requirements).

B. MONITORING REQUIREMENTS

The discharger(s) shall conduct monitoring of groundwater, surface water, and any other environmental media, structures, devices, or facilities as specified in Table 1. Table 1 specifies monitoring locations, frequency, parameters, and methods. Figure A-1 illustrates monitoring well locations.

Sample collection, storage, and analyses shall be performed according to the most recent version of EPA Standard Methods or in accordance with an approved sampling and analysis plan. Water and waste analyses shall be performed by a California State approved laboratory for the required analyses. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the discharger(s). Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

C. REPORTING REQUIREMENTS

Each monitoring report shall include the following information:

1. **Transmittal Letter:** A letter transmitting essential points shall be included in each monitoring report. The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall also certify the completion of all monitoring requirements. The letter shall be signed by the discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.
2. **Compliance Evaluation Summary:** A compliance evaluation summary containing the following information:
 - a. A summary and certification of completion of all monitoring as specified in this SMP
 - b. A graphic presentation of the gradient and direction of groundwater flow, based upon the past and present water level elevations and other factors that may influence groundwater movement
 - c. Map(s) or aerial photograph(s) showing all monitoring locations

- d. The signature of the laboratory director whose name appears on the laboratory certification, indicating that he/she has supervised all analytical work in his/her laboratory
3. **Appendices:** Include the following information in appendices, unless the information is already contained in an approved Sampling and Analysis Plan:
 - a. New boring and well logs
 - b. Method and time of water level measurements
 - c. Purging methods and results including the type of pump used, pump placement in the well, pumping rate, equipment and methods used to monitor field pH, temperature, and conductivity, calibration of the field equipment, pH, temperature, conductivity, and turbidity measurements, well recovery time, and method of disposing of the purge water
 - d. Sampling procedures, field and travel blanks, number and description of duplicate samples, type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other relevant observations
 - e. Documentation of laboratory results, analytical methods, detection limits, and Quality Assurance/Quality Control (QA/QC) procedures for the required sampling, including:
 - (1) Laboratory statements of results of analyses
 - (2) Descriptions of analytical methods used (note, if methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and approval by the Executive Officer prior to use)
 - (3) Actual detection limits for each sample results (note, detection limits must be appropriate for the expected concentrations)
 - (4) Laboratory quality assurance/quality control (QA/QC) information and results including analytical methods, detection limits, recovery rates, explanations for low recovery rates (less than 80%), equipment and method blanks, spikes and surrogates, and QA/QC sample frequency
 - f. Electronic files (ASCII or Excel® format) containing all analytical results and water level measurements

D. ANNUAL REPORTING

The discharger(s) shall submit an annual self-monitoring report to the Regional Board covering the previous calendar year. The annual report must summarize all monitoring, investigation, and remedial activities that have occurred in the previous year. The annual report shall include the following information, in addition to the transmittal letter and appendices described in Sections C.1 and C.3:

1. **Graphic Presentation:** Include site maps (plot plans) for each aquifer or water-bearing zone monitored that are drawn to a scale that remains constant from reporting period to reporting period. These maps shall include the following information:

- a. Known or probable contaminant sources
- b. Well locations
- c. Groundwater elevation contours
- d. Inferred groundwater flow direction(s)
- e. Extent of phase-separated product (NAPL)
- f. Extent of dissolved chemical constituents (e.g., isoconcentration maps)
- g. Appropriate analytical results

Line or bar graphs are helpful to illustrate variations in groundwater elevations, phase-separated product thickness, and dissolved chemical concentrations with time. Geologic cross sections are required if new data is available and/or the previous interpretation of subsurface conditions has changed. When required, geologic cross sections shall include the following:

- h. Vertical and lateral extent of contamination
- i. Contaminant sources
- j. Geologic structures
- k. Soil lithology
- l. Water table/piezometric surfaces
- m. Sample locations
- n. Sample analytical results
- o. Subsurface utilities and any other potential natural or manmade conduits for contaminant migration

2. **Tabular Presentation:** Present all of the following data in one or more tables to show a chronological history and allow quick and easy reference:

- a. Well designations
- b. Well construction (including top of well casing elevation, total well depth, screen interval depth below ground surface, and screen interval elevation)
- c. Groundwater depths
- d. Groundwater elevations
- e. Horizontal groundwater gradients
- f. Vertical groundwater gradients (including comparison wells from different zones)
- g. Phase-separated product elevations
- h. Phase-separated product thickness
- i. Analytical results (including analytical method and detection limits for each constituent)
- j. Measurement dates
- k. Groundwater extraction, including:
 - (1) Average daily extraction rate
 - (2) Total volume extracted for monitoring period
 - (3) Cumulative total volume extracted since system inception
- l. Contaminant mass removal, including:
 - (1) Average daily removal rate

- (2) Total mass removed for monitoring period
- (3) Cumulative total mass removed since system inception

3. **Discussion:** Provide a discussion of the field and laboratory results that includes the following information:
- a. Data Interpretations
 - b. Conclusions
 - c. Recommendations
 - d. Newly implemented or planned investigations & remedial measures
 - e. Data anomalies
 - f. Variations from protocols
 - g. Conditions of wells

E. CONTINGENCY REPORTING

- 1. **Violation Reports:** The discharger(s) shall notify the Regional Board by telephone as soon as practicable whenever requirements in this Order are violated. Regional Board staff may, depending on violation severity, require the discharger(s) to submit a separate technical report on the violation within five working days of the telephone notification.
- 2. **Other Reports:** The discharger(s) shall notify the Regional Board in writing prior to any site activities, such as construction or removal work, that have the potential to cause further migration of contaminants or provide new opportunities for site investigation.

F. MAINTENANCE OF WRITTEN RECORDS

Information required pursuant to this Self-Monitoring Program shall be maintained by the discharger(s) for a minimum of five years. The five-year period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board.

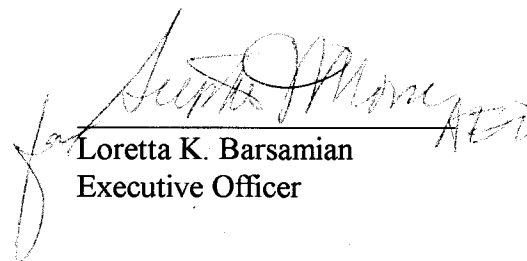
G. REPORTING SCHEDULE

The Discharger(s) shall submit self-monitoring reports per the schedule indicated in Table A-2. Reports due at the same time may be combined into one report for convenience, as long as monitoring activities and results pertaining to each monitoring period are clearly distinguishable. All monitoring reports shall be submitted to the Regional Board no more than 60 days after the end of the monitoring period as indicated in Table A-2.

Table A-2 Monitoring Periods and Reporting Due Dates

Monitoring Periods	Reporting Due Dates
First Semi-Annual (Jan 1 – Jun 30)	August 31
Second Semi-Annual (Jul 1 – Dec 31)	March 1
Annual (Jan 1 – Dec 31)	March 1

I, Loretta K. Barsamian, Executive Officer, hereby certify that the foregoing Self-Monitoring and Reporting Program was adopted by the Regional Board on February 19, 2003.


Loretta K. Barsamian
Executive Officer

Attachments: Table -1
Figure -1

TABLE 1

GROUNDWATER MONITORING PROGRAM

Shore Terminals - Martinez Facility

Martinez, California

Task	Monitoring Frequency	
Water Level Measurements for Potentiometric Surface Map Includes checking/measuring product thickness and depth to water measure-ments for all wells listed in the groundwater and the surface impoundment monitoring program summarized below.	Quarterly	

Task	Monitoring Frequency	Wells Sampled	Petroleum Hydrocarbons ¹	Metals ²	Phenols ³
Groundwater Monitoring	Semi-annual	MW-2	X		
		MW-3	X		
		MW-10	X		
		MW-11	X		
		MW-12	X		
		MW-15	X		
		MW-16	X		
		MW-18	X	X	
		MW-21	X		
		MW-24	X		
		MW-101	X		
		LF-28	X		
		LF-29	X		
		LF-30	X		
		P-12	X		
	Annual	MW-1	X		
		MW-4	X		
		MW-5	X		
		MW-6	X		
		MW-13	X		
		MW-22	X		
		MW-23	X		
		LF-25	X		
		P-7	X		

TABLE 1

GROUNDWATER MONITORING PROGRAM

Shore Terminals - Martinez Facility

Martinez, California

Task	Monitoring Frequency	Wells Sampled	Petroleum Hydrocarbons ¹	Metals ²	Phenols
Surface Impoundment Monitoring	Semi-annual	MW-8	X		
		MW-8R ⁴			
		MW-17	X		
		W-1	X	X	X
		W-2	X	X	X
		W-3	X	X	X

Task	Monitoring Frequency	Wells Sampled	Petroleum Hydrocarbons ¹	Metals ²	Phenols
Aboveground Storage Tank Monitoring - Crude Oil Tank Farm	Quarterly	P-20 thru P-24	X		
		P-26	X		
		P-27	X		

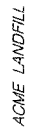
Task	Monitoring Frequency	Wells Sampled	Petroleum Hydrocarbons ¹	Metals ²	Phenols
Aboveground Storage Tank Monitoring - Refined Product Tank Farm	Quarterly	P-2	X		
		LF-26	X		
		LF-27	X		
		P-13 thru P-19	X		

¹ Analyzed for total petroleum hydrocarbons quantified as diesel (TPHd) and motor oil (TPHmo) using EPA Method 8015M or a GC/MS combination; and for gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary-butyl ether (MTBE) using EPA Method 8260.

² Metals analyzed using EPA Method 200.8 and include arsenic, copper, lead, nickel, and zinc.

³ Phenols analyzed using EPA Method 8270.

⁴ Monitoring well MW-8 was destroyed by Levine-Fricke-Recon, and replaced by monitoring well MW-8R in March 2001.



SITE PLAN
Shore Terminals - Martinez Facility
Martinez, California

Project No.
6000.001 B



Figure 1

- NOTES
1. Not shown on this figure:
- Tank #16 located to the west of tank #15 and vadose zone piezometer P-25 is located on the northeast side of tank #16.
- Groundwater monitoring well MW-3 located approximately 1,240 feet north of well MW-4. Groundwater elevation in this well was 4.56 feet above mean sea level on February 25, 2001
 2. Location of MW-8R, installed by Levine+Nickel-Recon in February 2001, is approximate and based on information provided by the Regional Water Quality Control Board, San Francisco Bay Region.